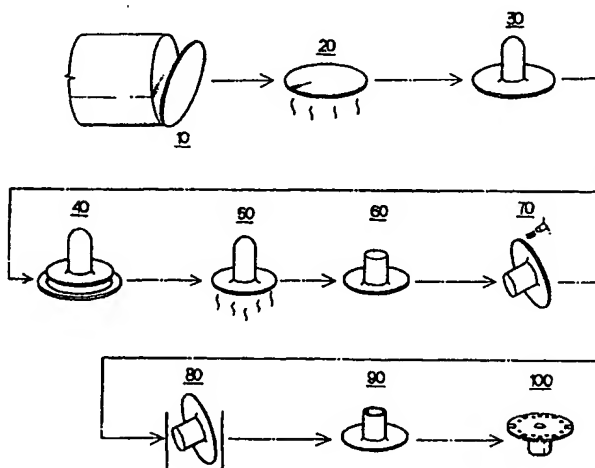




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : B21D 22/28	A1	(11) International Publication Number: WO 00/43145 (43) International Publication Date: 27 July 2000 (27.07.00)
(21) International Application Number: PCT/KR00/00037 (22) International Filing Date: 20 January 2000 (20.01.00) (30) Priority Data: 1999/2074 23 January 1999 (23.01.99) KR (71)(72) Applicant and Inventor: SON, Sangrak [KR/KR]; 50-15, Myungseo-1dong, Changwon-city, Kyungnam 641-561 (KR). (74) Agent: LEE, Joongseop; 1Ga-4, Bumin-dong, Seo-ku, Pusan 602-071 (KR).	(81) Designated States: AE, AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, HR, HU, ID, IL, IN, IS, JP, KP, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, SL, TR, TT, UA, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published With international search report.	

(54) Title: METHOD FOR MANUFACTURING DEHYDRATION ADJUSTMENT HOLDER OF WASHING MACHINE



(57) Abstract

A method for manufacturing a dehydration adjustment holder of a washing machine, comprising: a trimming and first molding working (A) for simultaneously shaping a center protrusion, a wing connected to the center protrusion, and a depression in the interior of the wing; a correction process (B) for making an upper surface of the wing to be flat while repeating diameter diminishment working and depth hardening working of the protrusion; a process (C) for making a penetrating space at the center of the protrusion while cutting and removing unnecessary edge of the diameter of the wing according to selected size; a wing correction process (D) for molding and constructing a hole (a) and a cutting unit-groove of the conventional wing; a recorection process (E) for vertically making a protrusion portion at an end of the penetrating space, to be flattened; and, a final cleaning and painting process (E).

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

METHOD FOR MANUFACTURING DEHYDRATION ADJUSTMENT HOLDER OF WASHING MACHINE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a washing machine, and more particularly, to a method for manufacturing dehydration adjustment holder of the washing machine.

2. Description of the Related Art

The prevent invention is made so as to cheaply produce products having good quality in large quantities with press working which breaks from a prior art forging working.

A dehydration holder of a washing machine is coupled to a dehydration body as a shaft in the bottom of the dehydration body to thus be driven, as shown in FIG. 2 showing a method a holder according to the prior art, with hot forging working.

Namely, the prior art forging working is sequentially executed with material cutting working 10, heating working 20, first forging working 30, trimming and edge cutting working 40, reheating working 50, and second forging working 60, and machinelikely executed with shorting-blasting 70 for stripping oxidation skin surface generated due to the forging workings, plating working 80,

shaft hole cutting process working 90 for coupling the shaft of the dehydration body. Also, it is finally executed with edge cutting working 100 by the molding.

That is, it takes much time and much electrical power to molding with heating the material as stated above. Further, because the molding working has the problem in that an end (edge) of protrusions become thin in case of changing the quality of the material, however the forging working has now been unavoidably performed as measure for easily changing the quality of the material.

Especially, now that the forging working is not performed in a first time, it is repeated in two times. At this point, operation efficiency is deteriorated due to manu workings of inserting heated material into the molding frame with tweezers by ones and stripping perfected products from the molding frame, thereby generating urgency of fire generation.

The edge cutting working 50 performed prior to the second forging working 60 is necessarily required because the edge of the product made from the first forging working 40 is irregular and has problems such as environment pollution and the urgency in the health of workers, as the working for stripping oxidation skin surface of the material generated after forging working in the shorting-blasting 70 following the second forging working.

Because the shaft hole process working 90 as machinelikely performed is divided into first and second forging workings, the prior art has problem in that the shaft hole process working 90 takes much time to be performed and the precision of the size is varied depending on the worker's skill.

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete appreciation of this invention, many of the attendant advantages thereof, will be readily apparent as the same becomes better understood by reference to the following detailed description when considered in conjunction with the accompanying drawings, in which like reference symbols indicate the same or similar elements components, wherein,

FIG. 1 is a view showing a method for manufacturing a holder according to the present invention; and,

FIG. 2 is a view showing a method for manufacturing a holder according to the prior art.

SUMMARY OF THE INVENTION

It is therefore an object of the present invention for solving the above problem to provide a method for manufacturing a dehydration holder of a washing machine with press molding working stripped from the forging working of the prior art, thereby generating good operation efficiency, price cutting of the product due to production in large quantities, and excellent

precision.

The above object can be achieved according to the present invention with a method for manufacturing a dehydration adjustment holder of a washing machine, including: a trimming and first molding working A for simultaneously shaping a center protrusion, a wing connected to the center protrusion, and a depression in the interior of the wing; a correction process B for making an upper surface of the wing to be flat while repeating diameter diminishment working and depth hardening working of the protrusion; a process C for making a penetrating space at the center of the protrusion while cutting and removing unnecessary edge of the diameter of the wing according to selected size; a wing correction process D for molding and constructing a hole a and a cutting unit-groove of the conventional wing; a recorection process E for vertically making a protrusion portion at an end of the penetrating space, to be flated; and, a final cleaning and painting process E.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Hereinafter, a preferred embodiment of the present invention will be in detail explained with reference to the accompanying drawings.

A center protrusion 1, a wing 2 connected to the above center

protrusion 1, a depression 2a in the interior of the wing 2 are simultaneously shaped through trimming working of the cut material in the molding and a first molding process A. The molding state is similar to that of a hat.

While reducing the diameter of the protrusion 1 with the molding, the depth of the protrusion 1 becomes deep and the molding process of the wing 2 is performed to horizontally and precisely rotate the dehydration body. Next, the above workings are again repeated in two times and a correcting process B to flatly cast an upper surface 1' of the protrusion 1 and to edgily cast the edge in selected sizes, and a process C to shape a shaft tube by making the penetrating space 2' at the center of the protrusion 1 are performed.

Following that, a wing correction process D for forming a hole a and cutting unit-groove b as necessary construction elements of the wing 2 of the above molded product is performed with the molding, a recorection process E for vertically making a protrusion portion 1a remained in cut state, in the end of the protrusion 1 generated upon molding the penetrating space 2' in the process C, to be flated, and a conventional cleaning and painting process F are performed sequentially, thereby producing perfected products.

All processes of the present invention are performed with press molding working.

Namely, the prior art forging working is selected for preventing the diminishment of the pressure force at the shaft because the penetrating space 2', or, the end of the shaft tube is increased to be thin with the molding process and accordingly, terminals are open upon assembling the shaft. However, the process according to the present invention is executed as an up setting process of hardening the diameter of the upper surface 1' of the protrusion 1 as a measure including a hardening process.

The trimming and first molding process A applies the pressure to the metal plate (material) supplied therein with the molding and molds a fundamental structure having the protrusion 1 and the wing 2. Also, the correction process B is performed as a previous process for molding the fundamental structure, with repeating diameter diminishment working and depth hardening working of the protrusion 1 depending on the selected requirements. The above repeating workings are performed by considering the phenomenon of rapidly making the thickness of the protrusion to be thin to thus be cracked in the case of suddenly diminishing the diameter of the protrusion 1. Further, since the up setting process is performed with trimming the upper surface 1' of the protrusion 1, the upper surface 1' is finally molded to be flat. This is shown in the correction process of the diagrams of the present invention.

The process C is executed with making the penetrating space 2' at the center of the protrusion 1 with the molding and forming the

shaft tube for coupling the rotation shaft of the dehydration body, while cutting and removing unnecessary edge of the diameter of the wing 2 according to the selected size. In this case, since it is not easy to perform the process C in the event that the diameter of the molding is equal to that of the penetrating space 2' upon molding the penetrating space 2', the molding having the diameter less than that of the penetrating space 2' is used in the process C, so that the protrusion portion 1a can be remained to be coupled and cut to the end of the interior of the penetrating space 2'. However, the protrusion portion 1a is corrected with recorection process E as will be described hereinafter. The above state become the fundamental structure having the fundamental configuration and the construction elements of the present invention.

Therefore, the wing correction process D molds and constructs the hole a and a cutting unit-groove b as necessary elements of the conventional wing 2 in the above fundamental structure. Also, the recorection process E according to the present invention vertically can finally obtain the perfected products through the conventional cleaning and painting process while making a protrusion portion 1a generated upon molding the penetrating space 2' in the process C, to be flated and makes the coupling of the shaft to be intimate with each other.

As may be apparent from the foregoing, the present invention has advantages in that the price of the product can be remarkably lowered as production in large quantities and the generation of

inferior goods can be decreased with molding at the exact size because the repeating workings can be performed with adapting not the conventional forging working but the press molding working. As well, the size of the penetrating space 2' is exactly made with precision process, thereby maintaining good reliability of the product. Likewise, the present invention is for applying the pressure with using the metal plate, thereby contributing the production in large quantities and price cutting.

While there have been illustrated and described what are considered to be preferred embodiments of the present invention, it will be understood by those skilled in the art that various changes and modifications may be made, and equivalents may be substituted for elements thereof without departing from the true scope of the present invention. In addition, many modifications may be made to adapt a particular situation to the teaching of the present invention without departing from the central scope thereof. Therefore, it is intended that the present invention not be limited to the particular embodiments disclosed as the best mode contemplated for carrying out the present invention, but that the present invention includes all embodiments falling within the scope of the appended claims.

WHAT IS CLAIMED IS:

1. A method for manufacturing a dehydration adjustment holder of a washing machine, comprising:

a trimming and first molding working A for simultaneously shaping a center protrusion, a wing connected to said center protrusion, and a depression in the interior of the wing;

a correction process B for making an upper surface of said wing to be flat while repeating diameter diminishment working and depth hardening working of said protrusion;

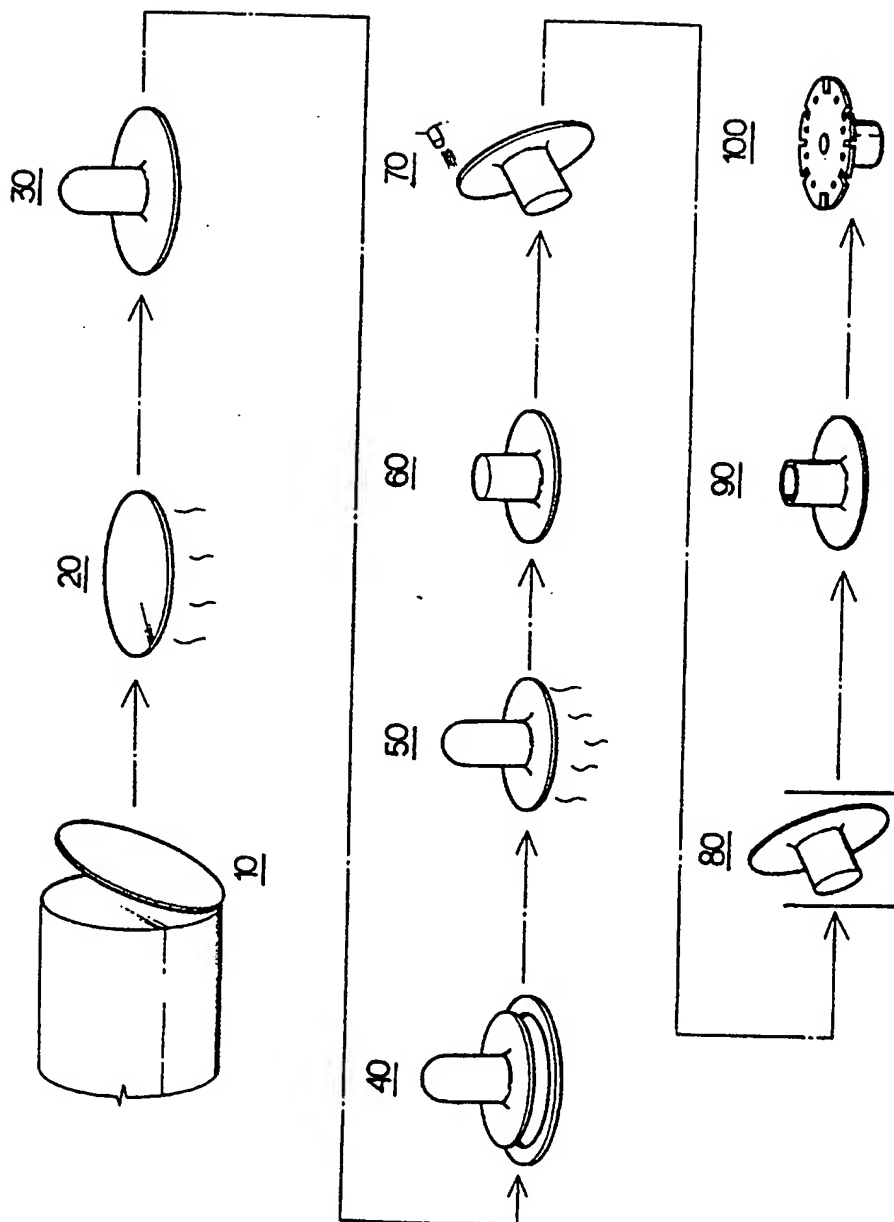
a process C for making a penetrating space at the center of said protrusion while cutting and removing unnecessary edge of the diameter of said wing according to selected size;

a wing correction process D for molding and constructing a hole a and a cutting unit-groove of said conventional wing;

a recorection process E for vertically making a protrusion portion at an end of said penetrating space, to be flated;
and,

a final cleaning and painting process E.

Fig. 2



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR 00/00037

A. CLASSIFICATION OF SUBJECT MATTER

IPC⁷: B21D 22/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC⁷: B21D 22/00, 22/04, 22/06, 22/28, 22/30, 28/14, 28/24, 28/26, 35/00, 37/01

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CH 636542 A5 (MAX STATNIK ET CO.) 15 June 1983 (15.06.83) claim 1,2; fig. 1a - 1n.	1
A	DE 3001227 A1 (VEB WASCHGERÄTEWERK SCHWARZENBERG) 23 October 1980 (23.10.80), page 3, paragraph 2; page 5, paragraph 1-3.	1

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents: „A“ document defining the general state of the art which is not considered to be of particular relevance „E“ earlier application or patent but published on or after the international filing date „L“ document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) „O“ document referring to an oral disclosure, use, exhibition or other means „P“ document published prior to the international filing date but later than the priority date claimed	„T“ later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention „X“ document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone „Y“ document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art „&“ document member of the same patent family
--	--

Date of the actual completion of the international search

16 March 2000 (16.03.00)

Date of mailing of the international search report

23 March 2000 (23.03.00)

Name and mailing address of the ISA/AT
Austrian Patent Office
Kohlmarkt 8-10; A-1014 Vienna
Facsimile No. 1/53424/200

Authorized officer

Bistrich

Telephone No. 1/53424/375

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR 00/00037

Patent document cited in search report			Publication date	Patent family member(s)		Publication date
CH	A	636542	15-06-1983	none		
DE	A1	3001227	23-10-1980	DD	2 142666	09-07-1980